

Cont
A12

wherein a radial rake angle of said cutting edges is set to a negative value in a range of -5° to -10° , a point angle thereof is in a range of 125° to 135° , a groove width ratio thereof is in a range of 0.9 to 1.1 and wherein a core diameter thereof is in a range of $0.38D$ to $0.42D$, wherein D comprises a cutting edge diameter of said hole forming tool.

3. (Amended) A hole forming tool according to claim 1, wherein a helix angle of said chip discharging grooves is in a range of 5° to 15° .

A13

4. (Amended) A hole forming tool which rotates around a rotational axis, comprising:
one or more chip discharging grooves which are helically formed around a rotational axis in an exterior surface of said hole forming tool; and

one or more cutting edges which are formed along ridge lines between inner surfaces of said chip discharging grooves, which face a rotating direction of said hole forming tool, and flank faces formed at an end of said hole forming tool,

wherein a radial rake angle of said one or more chip discharging cutting edges is set to a negative value in the range of -5° to -10° , a point angle thereof is in a range of 125° to 135° , and a core diameter thereof is in a range of $0.38D$ to $0.42D$, in which D is a cutting edge diameter of said hole forming tool.

5. (Amended) A hole forming tool according to claim 4, wherein a helix angle of said chip discharging grooves is in a range of 5° to 15° .

6. (Amended) A hole forming tool which rotates around a rotational axis, comprising:
one or more chip discharging grooves which are helically formed around a rotational axis in an exterior surface of said hole forming tool; and one or more cutting edges which are formed along ridge lines between inner surfaces of said chip discharging grooves, which face a rotating direction of said hole forming tool, and flank faces formed at an end of said hole forming tool,

Cont
A13

wherein a radial rake angle of said one or more chip discharging cutting edges is set to a negative value in a range of -5° to -10° , a point angle is in range of 125° to 135° , a helix angle of said chip discharging grooves is in a range of 5° to 15° and wherein a core diameter thereof is in the range of $0.38D$ to $0.42D$, wherein D comprises a cutting edge diameter of said hole forming tool.

7. (Amended) A hole forming tool which rotates around a rotational axis, comprising:
one or more chip discharging grooves which are helically formed around a rotational axis in an exterior surface of said hole forming tool; and

one or more cutting edges which are formed along ridge lines between inner surfaces of said chip discharging grooves, which are facing the rotating direction, and flank faces formed at an end of said hole forming tool,

wherein a radial rake angle of said one or more chip discharging cutting edges is set to a negative value in a range of -5° to -10° , wherein a point angle thereof is in a range of 125° to 135° , and wherein at least parts thereof including said cutting edges comprise a cemented carbide and an average particle diameter of WC, comprised of said cemented carbide, is in a range of 0.1 to $1.0\mu\text{m}$ and wherein a core diameter thereof is in a range of $0.38D$ to $0.42D$, wherein D comprises a cutting edge diameter of said hole forming tool.

8. (Amended) A hole forming tool according to one of claim 7, wherein a groove width ratio is in a range of 0.9 to 1.1 .

10. (Amended) A hole forming tool according to one of claim 7, wherein a helix angle of said chip discharging grooves is in a range of 5° to 15° .

A14

11. (Amended) A hole forming tool which rotates around a rotational axis, comprising:

one or more chip discharging grooves which are helically formed around a rotational

axis in the exterior surface of said hole forming tool; and

Cont
A14 one or more cutting edges which are formed along ridge lines between inner surfaces of said chip discharging grooves, which face a rotating direction of said hole forming tool, and flank faces formed at an end of said hole forming tool,

wherein a radial rake angle of said one or more chip discharging cutting edges is set to a negative value in a range of -5° to -10° , wherein a point angle thereof is in a range of 125° to 135° , at least a part thereof including said chip discharging grooves of said hole forming tool is coated with a layer constructed of a hard material and wherein a core diameter thereof is in a range of $0.38D$ to $0.42D$, wherein D comprises a cutting edge diameter of said hole forming tool.

12. (Amended) A hole forming tool according to one of claim 11, wherein a groove width ratio is in a range of 0.9 to 1.1.

14. (Amended) A hole forming tool according to one of claim 11, wherein a helix angle of said chip discharging grooves is in a range of 5° to 15° .

A15 15. (Amended) A hole forming tool according to claim 1, wherein the main body of said hole forming tool is constructed of a cemented carbide which comprises 10 ± 2 wt % Co, 0.65 ± 0.25 wt % Cr, WC for a balance thereof, and inevitable impurities.

16. (Amended) A hole forming tool which rotates around a rotational axis, comprising:

one or more chip discharging grooves which are helically formed around a rotational axis in an exterior surface of said hole forming tool; and

one or more cutting edges which are formed along ridge lines between inner surfaces of said chip discharging grooves, which are facing a rotating direction, and flank faces formed at an end of said hole forming tool,

Cont
A15

wherein a radial rake angle of said one or more chip discharging cutting edges is set to a negative value in the range of -5° to -10° , a point angle is in a range of 125° to 135° , the main body of said hole forming tool is constructed of a cemented carbide which comprises 10 ± 2 wt % Co, 0.65 ± 0.25 wt % Cr, WC for a balance thereof, and inevitable impurities and wherein a core diameter thereof is in a range of $0.38D$ to $0.42D$, wherein D comprises a cutting edge diameter of said hole forming tool.

17. (Amended) A method of constructing a hole forming tool which is rotatable about a rotational axis, comprising:

helically forming one or more chip discharging grooves around the rotational axis and in an exterior surface of said hole forming tool; and

forming one or more cutting edges along ridge lines between inner surfaces of said chip discharging grooves, which face the rotational direction, and flank faces formed at an end of said hole forming tool, and

setting a radial rake angle of said cutting edges to a negative value in a range of -5° to -10° , wherein a point angle is in a range of 125° to 135° , and wherein a groove width ratio is in a range of 0.9 to 1.1; and

forming a core diameter of the whole forming tool so as to be in a range of $0.38D$ to $0.42D$ wherein D is a cutting edge diameter of said hole forming tool.

Please add new Claims 18-22 as follows:

18. (New) A hole forming tool which rotates around a rotational axis, comprising:

one or more chip discharging grooves which are helically formed around a rotational axis in an exterior surface of said hole forming tool, said chip discharging grooves having an inner surface; and

one or more cutting edges which are formed along ridge lines between inner surfaces

A16

Cont
A16
of said chip discharging grooves, which are facing a rotating direction thereof, and flank faces formed at an end of said hole forming tool,

wherein a core diameter of the hole forming tool is in a range of $0.38D$ to $0.42D$

wherein D comprises a cutting edge diameter of said hole forming tool.

19. (New) A hole forming tool which rotates around a rotational axis, comprising:
one or more chip discharging grooves which are helically formed around rotational axis in an exterior surface of said hole forming tool; and

one or more cutting edges which are formed along ridge lines between inner surfaces of said chip discharging grooves, which are facing a rotating direction of said hole forming tool, and flank faces formed at an end of said hole forming tool,

wherein a core diameter of the hole forming tool is in a range of $0.38D$ to $0.42D$
wherein D comprises a cutting edge diameter of said hole forming tool.

20. (New) A hole forming tool which rotates around a rotational axis, comprising:
one or more chip discharging grooves which are helically formed around a rotational axis in an exterior surface of said hole forming tool; and

one or more cutting edges which are formed along ridge lines between inner surfaces of said chip discharging grooves, which are facing a rotating direction thereof, and flank faces formed at an end of said hole forming tool,

wherein a core diameter of the hole forming tool is in a range of $0.38D$ to $0.42D$
wherein D comprises a cutting edge diameter of said hole forming tool.

21. (New) A hole forming tool which rotates around a rotational axis, comprising:
one or more chip discharging grooves which are helically formed around a rotational axis in an exterior surface of said hole forming tool; and

one or more cutting edges which are formed along ridge lines between inner surfaces

Cont
A16
of said chip discharging grooves, which are facing a rotating direction, thereof and flank faces formed at an end of said hole forming tool,

wherein the main body of said hole forming tool is constructed of a cemented carbide which comprises 10 ± 2 wt % Co, 0.65 ± 0.25 wt % Cr, WC for a balance thereof, and inevitable impurities and wherein a core diameter of the hole forming tool is in a range of $0.38D$ to $0.42D$ wherein D comprises a cutting edge diameter of said hole forming tool.

22. (New) A method of constructing a hole forming tool which is rotatable about a rotational axis, comprising:

helically forming one or more chip discharging grooves around the rotational axis and in an exterior surface of said hole forming tool; and

forming one or more cutting edges along ridge lines between inner surfaces of said chip discharging grooves, which face the rotational direction, and flank faces formed at an end of said hole forming tool, and

setting a radial rake angle of said cutting edges to a negative value in a range of -5° to -10° , wherein a point angle is in a range of 125° to 135° , and wherein a groove width ratio is in a range of 0.9 to 1.1; and

forming a core diameter of the hole forming tool so as to be in a range of $0.38D$ to $0.42D$ wherein D comprises a cutting edge diameter of said hole forming tool.

Please cancel Claims 2, 9 and 13, without prejudice.